

PATENT COOPERATION TREATY
PCT
INTERNATIONAL SEARCH REPORT
(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 260625.00005	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No. PCT/CA2005/000412	International filing date (<i>day/month/year</i>) 18 March 2005 (18-03-2005)	(Earliest) Priority date (<i>day/month/year</i>) 18 March 2004 (18-03-2004)	
Applicant TREATED AIR SYSTEMS INC. ET AL			
This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.			
This international search report consists of a total of <u>8</u> sheets.			
<input checked="" type="checkbox"/> It is also accompanied by a copy of each prior art document cited in this report.			
1. Basis of the report			
a. With regard to the language , the international search was carried out on the basis of:			
<input checked="" type="checkbox"/> the international application in the language in which it was filed			
<input type="checkbox"/> a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))			
b. <input type="checkbox"/> With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I			
2. <input type="checkbox"/> Certain claims were found unsearchable (see Box No. II)			
3. <input checked="" type="checkbox"/> Unity of invention is lacking (see Box No. III)			
4. With regard to the title ,			
<input checked="" type="checkbox"/> the text is approved as submitted by the applicant			
<input type="checkbox"/> the text has been established by this Authority to read as follows :			
5. With regard to the abstract ,			
<input checked="" type="checkbox"/> the text is approved as submitted by the applicant			
<input type="checkbox"/> the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority			
6. With regard to the drawings ,			
a. the figure of the drawings to be published with the abstract is Figure No. 2			
<input type="checkbox"/> as suggested by the applicant			
<input type="checkbox"/> as selected by this Authority, because the applicant failed to suggest a figure			
<input checked="" type="checkbox"/> as selected by this Authority, because this figure better characterizes the invention			
b. <input type="checkbox"/> none of the figures is to be published with the abstract			

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

1. ☐ Claim Nos. :
because they relate to subject matter not required to be searched by this Authority, namely :

2. ☐ Claim Nos. :
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :

3. ☐ Claim Nos. :
because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

(see continuation of second sheet of Form PCT/ISA/210)

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. :

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Categor	Citation of document, with indication, where appropriate, of	Relevant to claim No.
X	CA 2120628 (LANGFORD, ET AL) 15 April 1993 Figures 1, 2, 5, 11 & 13; pages 25-27, especially, page 12 line 18-25, page 17 line 25, page 21 line 1-34, page 25 line 7-page 26 line 5	2
X	CA 2459041 (POTEMBER, ET AL) 10 April 2003 see claims 2, 16, 20, 26 & 28; Figs. 1-2, pages 18-19; Examples	1-2
X	JP 2001286542 A2 (FURUTA, ET AL) 16 October 2001 Abstract	1
X	US 5501844 B2 (KASTING JR., ET AL) 26 March 1996 whole document, especially Figs. 1, 3	1-2
X	US 5368816 B2 (DETZER, ET AL) 29 November 1994 the whole document, especially, Figure 1; col 2 line 7 - col 4 line 12; claims	2
X	ELFORD, ET AL: "An investigation of the merits of ozone as an aerial disinfectant" <i>Journal of Hygiene</i> 1942, 42, 240-265 the whole document	1
Y	SHIN, ET AL: "Reduction of Norwalk virus, Poliovirus 1, and Bacteriophage MS2 by ozone disinfection of water" <i>Applied Environmental Microbiol.</i> July 2003, 69(7), 3975-3978 Cited in the application the whole document	3-4
Y	KESWICK, ET A: "inactivation of Norwalk virus in drinking water by chlorine" <i>Applied Environmental Microbiol.</i> August 1985, 50(2), 261-264 the whole document	3-4
Y	VAUGHN, ET AL: "Inactivation of human and simian rotaviruses by ozone" <i>Applied Environmental Microbiol.</i> , 1 September 1987, 53(9), 2218-2221 Cited in the application the whole document	3-4
Y	SATO, ET AL: "Virucidal effect of ozone treatment of laboratory animal viruses" <i>Jikken Dobutsu, Experimental Animals</i> April 1990, 39(2), 223-229, Cited in the application Abstract	3-4

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	BOLTON, ET AL: "Biological effects of ozone aerosol on five groups of animal viruses" Abstract of the annual meeting of the American Society for Microbiology. Meeting 1980 vol. 167, page 280 Q89	3-4
P, X	US 20040202570 A (NADKARNI, ET AL) 14 October, 2004 see whole document	1-2
P, X	CA 2443046 (BEDARD, ET AL) 26 March 2005 the whole document	1
A	SUPHACHAI, ET AL: "Capsid functions of inactivated human picornaviruses and feline calicivirus" <i>Applied Environmental Microbiol.</i> January 2003, 69(1), 350-357 Abstract	3
A	SUPHACHAI, ET AL: "Ultraviolet inactivation of feline calicivirus, human entericviruses and coliphages" <i>Photochemistry & Photobiology</i> 2002 76(4), 406-410 Abstract	3
A	DOULTREE, ET AL: "Inactivation of feline calicivirus, a norwalk virus surrogate" <i>J. Hosp. Infect.</i> Jan. 1999 41(1), 51-57 Abstract	3

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2005/000412

Patent document cited in search report	Publication Date	Patent family members		Publication Date
CA 2311386 A	03-06-1999	WO	9926668 A1	03-06-1999
		WO	9913956 A2	25-03-1999
		US	20030039577 A1	27-02-2003
		US	20020098109 A1	25-02-2002
		CA	2309215 AA	14-05-1999
		CA	2304070 AA	25-03-1999
		CA	2304069 AA	25-03-1999
		AU	9495994 A1	05-04-1999
		AU	9473398 A1	05-04-1999
		AU	5134399 A1	21-02-2002
		AU	1798299 A1	15-06-1999
CA 2270512 A	30-10-2000	WO	03039607A1	15-05-2003
		WO	0066186 A1	09-11-2000
		US	20020085950 A1	04-07-2002
		MX	1010866 A	24-06-2003
		JP	2002542896 T2	17-12-2002
		EP	1175230 A1	30-01-2002
		BR	0011210 A	26-02-2002
		AU	0022724 A5	17-11-2000
CA 2120628 A	15-04-1993	WO	9306948 A1	15-04-1993
		US	5207237 B1	04-05-1993
		US	5184633 B1	09-02-1993
		DE	69424867 T2	15-02-2001
		JP	09501845 T2	25-02-1997
		JP	07500428 T2	12-01-1995
		EP	0642393 A1	15-03-1995
		AU	2781492 A1	03-05-1993
CA 2459041 A	10-04-2003	WO	03028773 A1	10-04-2003
		US	20040120845 A1	24-06-2004
		JP	2005503893 T3	10-02-2005
		EP	1432455 A1	30-06-2004
JP 2001286542 A2	16-10-2001	NONE		
US 5501844 B2	26-03-1996	NONE		
US 200402025570 A1	14-10-2004	WO	04098663 A1	18-11-2004
		AU	3221919 AA	26-11-2004

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CA2005/000412

Patent document cited in search report	Publication Date	Patent family members		Publication Date
US 5368816 A	29-11-1994	NO	0931107 A0	25-03-1993
		NO	0177727 C	29-10-1993
		JP	0710111 B4	01-11-1995
		JP	06088631 A2	29-03-1994
		GR	3018735 T3 A1	30-04-1996
		FI	0931372 A0	26-03-1996
		FI	0100430 B1	28-11-1997
		ES	2078773 T3	16-12-1995
		EP	0567775 A2	03-11-1995
		DK	0567775 T3	04-12-1995
		DE	59300769 C0	23-11-1995
		AT	0129334 E	15-11-1995
CA 2443046 AA	26-03-2005	WO	05030275 A1	07-04-2005

Continuation of Item No. III:

The subject matter of claims 1 and 2 lack any technical feature that defines a contribution over the prior art. The special technical features of claims 1 and 2 reside in a sterilization method and apparatus in a closed humidified environment using ozone. This subject matter of claims 1-2 already comprise part of the state of the art, and thus cannot be a linking feature to claims 3-4. The special technical features of claims 3 and 4 reside in a method for inactivating Norwalk virus in a closed environment by exposure to 20-30 ppm of ozone for a period of 30-70 minutes, where the humidity of the environment may be elevated. There is no common inventive concept linking the special technical features defined in claims 1 and 2 with those of claims 3 and 4. Thus, the present application is considered to comprise the following group of inventions:

- A. The subject matter of claims 1 and 2
- B. The subject matter of claims 3 and 4